

Remarks

The Office Action dated July 18, 2007 has been carefully considered. Independent Claims 1; 17; and 25 have been amended to distinguish the present inventions from the prior art of record. As such, 1-8; 17-24; and 25-32 remain in the case with none of the claims indicated allowable.

Applicant notes that the Response filed May 17, 2007 incorrectly labeled the status of Claim 25 as "Original". The claim was amended and therefore should have been designated as "Currently Amended." The claim is presently identified as "Currently Amended" in light of amendments offered herein. This clerical error will be considered to be without consequence unless otherwise notified.

The specification has been amended to add and define "chemically reducing". Applicant submits that the offered amendment does not constitute the introduction of new matter because it merely distinguishes the generic term "reducing", which could refer to chemical, volumetric or otherwise, from "chemically reducing" which is a term of art in redox chemistry and clearly part of the originally filed specification.

The claims have been amended to specify "reducing" as "chemically reducing" as described in the specification. The term "in situ" has also been inserted to better define the location of the resulting chemically reducing environment as being where the combustion occurs. This is clearly described in the specification and does not introduce new matter.

35 U.S.C. § 103(a) Rejections

Claims 1-3 were rejected as obvious in view of the combination of Salooja and Cahn. In response, Applicant agrees that Salooja teaches two stage combustion and that Cahn teaches chemically reducing SO_3 to SO_2 . However, the combination fails to render independent Claim 1 obvious because neither teaches "partially combusting the fuel in a first stage to create a chemically reducing environment in situ." Salooja's first stage burn yields a carbon-free or smoke free product (col. 1, lines 50-54), not necessarily a reducing environment. The present invention hinges on creating this reducing environment. Moreover, Cahn teaches creating a chemically reducing environment by supplying a reducing agent such as ammonia, as opposed to

generating one *in situ* according to the present invention.¹ Taken together the prior art discloses a first stage burn to yield a carbon/smoke free product then chemically reducing that product via an externally supplied reducing agent. The present invention involves a primary burn to yield a chemically reducing environment then oxidatively combusting the remainder of the fuel. Claims 2 and 3 are believed patentable due to their dependency on independent Claim 1.

Claims 4-7 and alternatively Claims 2-3 were rejected as obvious in view of the combination of Salooja, Cahn and admitted prior art. Claims 4-8 and alternatively Claims 2-3 were rejected as obvious in view of the combination of Salooja, Kindig and admitted prior art. These rejections are deemed moot in light of the patentability of independent Claim 1 discussed above.

Claims 17-23 and claims 25-31 were rejected as obvious in view of the combination of Salooja, Cahn, admitted prior art and May. As discussed with respect to independent Claim 1 above, Applicant respectfully reiterates that the method step of “partially combusting the fuel in a first stage to create a chemically reducing environment *in situ*” is not taught by the combination of Salooja and Cahn. Moreover, May does not provide this step. Thus, independent Claims 17 and 25 and claims 18-23 and 26-31 depending therefrom are believed patentable.

Claims 17-23 were rejected as obvious in view of the combination of Salooja, Cahn, Kindig and May. In response, Applicant states that he is unclear what the reference Kindig is purported to teach. However, in light of the fact that Kindig shows removing an electron ($\text{CaSO}_4\cdot\text{MgO} + \text{SO}_3 \rightarrow \text{CaSO}_4\cdot\text{MgSO}_4$), it is respectfully submitted that it could not teach the “partially combusting the fuel in a first stage to create a chemically reducing environment *in situ*” deficiency of Salooja and Cahn. Moreover, May does not teach this.

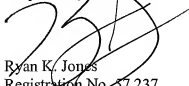
Double Patenting Rejection

Claims 1-8; 17-24; and 25-32 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as unpatentable over Claims 1-25 of co-pending application 10/798,088. A properly executed SB/25 is submitted contemporaneously with this Response to overcome the provisional rejection. Withdrawal of the rejection is requested.

¹ See at least col. 4, lines 7-9 and Fig. 1.

Applicant submits that by this amendment and terminal disclaimer, he has placed the case in condition for allowance and such action is respectfully requested. However, if any issue remains unresolved, Applicant's attorney would welcome the opportunity for a telephone interview to expedite resolution of any outstanding issues.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'RJ' or similar, is written over the typed name and registration information.

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